

New Product Adoption Processes
Exploring Motivations and Barriers to adopt the Electric Car in Mexico

Abstract

The main aim of this research is to explore the adoption process of the electric car in Mexico, highlighting motivations and barriers. For the methodology we use secondary sources, interviews with experts and an online survey with a convenience sample (N=447) composed of top management entrepreneurs, business owners, board members, MBA Alumni, from Mexico's main three cities: Monterrey, Guadalajara and Mexico City. Also, we use the case study of JAC to illustrate the experience of one of the pioneer automobile brands trying to penetrate this product category. The results confirm that the adoption of the electric car in Mexico is in an very early stage and there are still many barriers and threats to face.

Keywords: New Product Adoption Process, Electric Vehicles (EVs), Consumer Behavior, ASG, Sustainability.

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Introduction

The process of adopting new products or disruptive products (market innovations), such as the launch of the electric car in Mexico, generally involves a series of stages that consumers go through before deciding to adopt them. On the other hand, companies create new products in order to remain relevant and stay at the forefront in their sectors. However, it is not always easy for the consumer to understand and adapt to these products, which is necessary to decide to purchase them and if they are satisfied with their use, to be able to recommend them. New product adoption, as defined by Aktas (2022), is a process by which customers learn about the new product or service and become regular users of it.¹

Based on data from Mexico Energy, the automotive industry, with more than one million workers, contributes around 3.5 percent of Mexico's GDP and 20 percent of its manufacturing GDP. Hybrid models, which combine a conventional combustion engine with the use of electric batteries, are the most used “electric vehicles” in Mexico. However, EVs (electric cars) are becoming more popular. Only 1.8% of all registered electric cars sold in 2020 were fully electric, according to the Mexican Automotive Industry Association (AMIA). That percentage increased to 2.4% in 2021, and rose sharply to 8.8% in 2022. Mexico produced 3,068,812 electric vehicles in 2022, of which 47,079 were sold domestically and the rest were exported.

By 2030, 200,000 electric and hybrid vehicles are anticipated to be sold in Mexico, representing around two-thirds of the total 300,000 units sold in the Latin American region. This would represent an increase of around 68 percent in electric vehicle adoption. Over the next five years, the market is expected to grow between 25% and 30% annually.

Mexico’s National Institute of Statistics and Geography (INEGI) predicts that by 2030, Mexico will be selling 72,655 fully electric vehicles nationwide as a result of this trend. Based on the above, Mexico is emerging as one of the main contributors to the increase in the consumption of electric vehicles in Latin America. However, if Mexico manufactures so many electric cars, *why do so few Mexicans drive them?*²

¹ Aktas. M. (2022, September 21). A Guide to Product Adoption – Everything you need to know. www.userguiding.com

² Expansión. (2023, March 21). México fabrica autos eléctricos, pero pocos mexicanos los manejan. Expansión. www.expansion.mx.

Theoretical Framework

Several stages intervene in the adoption process of a new product or innovation. According to Roger's popular Innovation Adoption Model (2003), described in his book, *Diffusion of Innovations*, adoption is a decision to "full use an innovation as the best available course of action". These are the five main stages of an adoption process:

Awareness: During the first stage of the adoption process, consumers are exposed to the product innovation. This exposure is somewhat neutral, because they are not yet sufficiently interested in seeking additional information about the product.

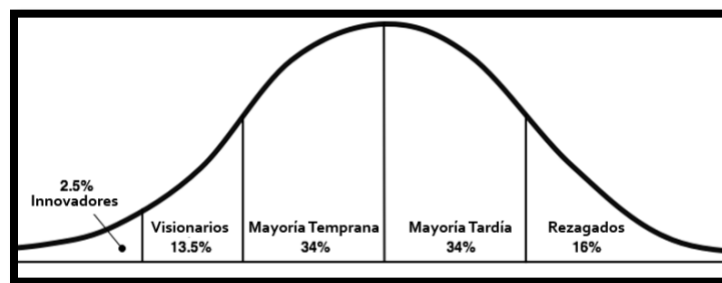
Interest: When consumers develop an interest in the product or product category, they seek information about how the innovation can benefit them.

Evaluation: With this information, consumers draw conclusions about the innovation or determine if more information is required. If the evaluation is satisfactory, the consumer will try the new product; If the test is not satisfactory, it will be rejected.

Trial: At this stage, consumers use the product in a limited way. Their experience with the product provides them with the crucial information needed to accept or reject it.

Adoption: Based on its testing and/or favorable evaluation, consumers decide to use the product on a full scale or decide to reject it.³ According to Roger, during the adoption process, there is an adoption curve (See **Figure 1**). In the first stage are *the innovators*, people who show great interest in the latest technologies and are willing to pay any price to have the latest. In the second stage are *the visionaries*, who are attracted to the product because of its features and benefits. Later, *the early majority* appears, they join as the product becomes more known and effective. Fourth on this adoption curve are those representing **the late majority** who begin to adopt the product as it becomes more popular and well-accepted. Finally we have *the laggards*, the last group to adopt the product.

Figure 1. Roger's New Product Adoption Curve



JAC: The Challenge of Democratizing the Electric Car in Mexico

In February 2017, in the months prior to the formation of the Volkswagen-JAC alliance in China, the arrival of the JAC brand to Mexico was announced, as a result of the collaboration between Giant Motors Latin-American (GML) and JAC Motors Company. This partnership, backed by an investment of \$212 million, was intended to manufacture vehicles under the JAC brand. The first two gasoline models selected for the Mexican market were the Sei 2 and the Sei 3. For this, an assembly line was established to adapt these models.

³ Alonso J, Grande I (2010) *Comportamiento del Consumidor: Decisiones y Estrategias de Marketing*. 6ª ed. ESIC. Madrid, España. 508 pp.

Although in the automotive industry, the brand represented a key factor in the purchasing decision, in the Mexican context, Chinese brands carried a negative perception of low quality due to their origin.

At the end of 2019, the strategy evolved towards electric cars. A controlled launch approach was chosen in Mexico, highlighting the brand's "*cutting-edge technology*" and discarding the stigma of low quality associated with Chinese. The COVID-19 pandemic accelerated this transition, making it the core of the business. By 2020, with a deeper understanding of the Chinese automotive industry and its market of 30 million electric vehicles, JAC set a vision to lead the global transformation of the automotive industry. The strategic objective focused on leading the Mexican electric vehicle market and democratizing electric mobility, aiming to sell 10,000 units annually by 2022. The commercial strategy focused on the segment of consumers aged 19 to 39 who were looking for quality vehicles at affordable prices. competitive. Brand identity and loyalty were built through outstanding purchasing experiences and high-quality vehicles.

Regarding product and pricing strategy, the first two electric models, launched in 2017, had prices below \$300,000 pesos (equivalent approximately to 14,285 euros). In 2020, the product portfolio was expanded, including SUVs, sedans and commercial vehicles, with an emphasis on amenities and advanced equipment. The "*JAC pure electric*" line of electric vehicles addressed various segments and the range of up to 550 km and affordable recharging made it attractive. Entry into the distribution channel faced obstacles, as gasoline models dominated the market.

Sales grew steadily, from 200 units per month in 2020 to 1,500 units in the second half of 2022. The initial experience of facing resistance from conservative distributors became valuable learning to guide future growth. The communication strategy focused on the digital environment, with campaigns that highlighted the Mexican origin of the vehicles, test drives and solid guarantees. It especially targeted a young and adventurous audience through platforms such as Facebook and Instagram, generating brand recognition and creating a database of prospects. JAC's journey in the Mexican market went from challenging negative perceptions to leading the electric vehicle revolution, transforming the brand's image and at the same time challenging the automotive ecosystem in the country.⁴ See **Exhibit 1**.

Methodology

For this exploratory research, first a search was carried out in secondary sources (ex. articles, cases, websites), then interviews were carried out with experts in the sector, among them, the general director of JAC México, and the commercial director of that same company. Subsequently, an online survey was applied to a sample of 447 people made up of entrepreneurs, members of Boards, Consultants, top managers, who were all Alumni of a top Business School in Mexico and participated in the study voluntarily. The questionnaire was sent through CANVAS platform and was carried out in Google forms.

The survey was done during a Top Management Program for Alumni, prior to the sessions where JAC Mexico case study was discussed. The survey was applied Mexico's three main cities: Monterrey, Guadalajara and Mexico City. The objective was to explore the challenges, level of penetration of EV and HV compared with combustion vehicles, identifying preferences and barriers regarding the adoption of the electric car.

⁴ Cacho-Elizondo, S.(2022). Case Study. JAC: El reto de democratizar el auto eléctrico en México. IPADE M 22 C 00 and also, Case Study: JAC: The challenge of democratizing the Electric Car in Mexico. NACRA 2022.

Sample Profile: 80% of the sample were men and 20% women, who ranged between 25 and 75 years old. Table 1 shows the details of the sample profile.

Table 1. Sample Profile

Demographic		N=447	%
Age	Under 25 years old	0	0%
	Between 25 and 35 years	14	3%
	Between 35 and 45 years	86	19%
	Between 45 and 55 years	157	35%
	Between 55 and 65 years	119	27%
	Between 65 and 75 years	67	15%
	More than 75 years	4	1%
City of Residence			
	CDMX	220	49%
	Guadalajara	101	23%
	Monterrey	126	28%

Main Results

The survey confirms that the majority of respondents still have internal combustion cars. **Table 2** shows the type of car used according to gender and city of residence. It is interesting to notice that hybrid car have been adopted faster in Mexico City than in the other two cities. Among the 447 who responded to the survey, only 10 owned an electric car, all of them were men. This was surprising given the profile of the sample composed of businessmen and managers. The brands that these participants who owned electric cars bought were, in Guadalajara (N=5): Tesla y Volvo; in Monterrey (N=3): Tesla y BMW; and in Mexico City (N=2): BMW. Although in the sessions in which the case was discussed some participants said that their electric car was from the JAC brand, this was not indicated in the survey.

Table 2. Type of Car according to Gender and City of Residence

Type of Car	Guadalajara (N=101)	Monterrey (N=126)	Mexico City (N=220)
Combustion	Women: 83%	Women: 80%	Women: 65%
	Men: 85%	Men: 75%	Men: 71%
Hybrid	Women: 17%	Women: 20%	Women: 35%
	Men: 9%	Men: 22%	Men: 27%
Electric	Women: 0%	Women: 0%	Women: 0%
	Men: 6%	Men: 3%	Men: 2%

The main motivations cited for buying an electric car were: 1) Helping to protect the environment; 2) Not paying ownership taxes & car verification and 3) Savings on car insurance. **Table 3** shows the results according to city of residence. As can be seen, environmental concerns emerge as a key driver to adopt the electric car.

Table 3. Motivations to Buy an Electric Car

Motivations to buy an Electric Car	Guadalajara (N=101)	Monterrey (N=126)	Mexico City (N=220)
Helping to protect the environment	68%	75%	65%
Not paying ownership taxes & car verification	23%	19%	20%
Saving on car insurance	9%	6%	15%

Respondents indicated that to accelerate the adoption of electric cars, automotive companies should consider mainly these factors: 1) Affordable Pricing, 2) Increase of public charges and 3) Government incentives to buy electric vehicles. Pricing seems to be the main barrier.

Main Learnings & Discussion

Rising demand for hybrid vehicles may encourage investment in electric charging infrastructure, paving the way for broader adoption of electric vehicles. As battery technology improves and costs decrease, plug-in hybrid vehicles (PHEVs) can offer a more affordable option for those who want to experience electric driving without compromising range. For some consumers, the complete transition to electric vehicles may seem overwhelming due to limited charging infrastructure and expensive prices. Hybrid vehicles offer a smoother transition, allowing drivers to familiarize themselves with electric technology before making the full jump to BEVs (battery electric vehicles).

The first challenge in the process of adopting new products, such as, the electric car in Mexico, is to break with the paradigms that concern the consumer, especially with respect to the efficiency of the units, the electrical infrastructure in cities and the real advantages or benefits that they offer compared with internal combustion cars. It will be necessary to invest more in public infrastructure, for example, by equipping national highways with faster chargers and promoting more affordable brands, such as JAC, especially if the goal is to democratize the use of the electric car in all segments.

Another point that may contribute to the idea that Mexico is not yet ready is the lack of government incentives, at least this is what the analyzed sample expressed. However, this cannot be a condition for the national car industry to generate a competitive and interesting offer in this category of cars. Furthermore, if automobile manufacturers choose to establish production plants in national territory, the tariff impact on vehicle imports will be reduced and this will encourage more Mexicans (and also consumers from other developing countries) to have access to this type of vehicles. that are more environmentally friendly. (World Bank, 2022).

The globalized automotive industry depends on being globally connected and Mexico is one of the most important automobile manufacturers worldwide, therefore, what it produces has to be aligned with global needs, but without forgetting the local market. Otherwise, even its leading role as a manufacturer could be jeopardized. Mexico is ready to accelerate the transition towards this electrification of mobility, and not only that, but it really deserves and needs this change. Therefore, ESG factors will need to be considered when promoting this new category and educating the consumer.

Limitations & Future Research

The exploratory nature of this study as well as the characteristics of the sample studied limits the generalization of the results obtained. Being a non-representative sample of the country's population, given that the sample is more representative of the business and top management sector, it would be difficult to generalize these results to a broader population. However, it is important to highlight that the sample studied most likely represents the profile of buyers from which the innovators, visionaries and the early majority of future users of the electric car will come. The findings allow us to understand a little more about the challenges behind the adoption of this new product in the context of a developing country. It is recommended that this study be taken as a first frame of reference for subsequent studies that can delve deeper into the challenges to be faced in the democratization of the electric car in Mexico.

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